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Estimation of Expected Academic Engagement Behaviors: The Use of Vague Quantifiers Versus Tallied Responses

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Estimating Expected Behavior Frequency

Little is known about estimations of *expected* engagement behaviors using when respondents use vague and enumerated response strategies.

This study is based on prior research regarding:

- academic expectations (e.g., Howard, 2005)
- estimation of behavior frequency (e.g., Schaeffer & Presser, 2003)
- use of vague quantifiers in survey research (e.g., Wright, Gaskell, O'Muircheartaigh, 1994)

Estimating Expected Behavior Frequency

Referencing Versus Enumerating When Estimating Behavior Frequency

Vague response sets invoke a process of comparison to estimate the behavior frequency (Pace & Friedlander, 1982; Schaeffer, 1991; Wanke, 2002).

Enumerated or tallied responses involves one or two steps depending on the time frame, behavior frequency, and schedule (fixed or variable) (Brown, 2002; Schaeffer & Presser, 2003).

1. Simple enumeration for low frequency behaviors regardless of the time frame or schedule
2. As the frequency of the behavior increases and time lengthens estimation becomes a two-step process: enumeration and extrapolation

Estimating Expected Behavior Frequency

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It is assumed that if vague and enumerated estimation strategies are complementary, then there should be a high concordance between the two estimation procedures.

However, if the estimations strategies vary between past and future behaviors, the differences found by using either one or the other may simply be an artifact of the response set presented in the survey.

Estimating Expected Behavior Frequency

This study will specifically investigate the extent to which different estimation procedures provide similar results.

Research questions include:



1. How consistent are estimations of prior high school and expected first year engagement behaviors as reported with vague quantifiers and reported with tallied responses?
2. Is the relationship between vague and tallied responses for high school behavior the same as for vague and tallied responses for expected first year behaviors?


Method: Data Source


- *2010 Beginning College Survey of Student Engagement*
- Administered during the summer/early fall to entering first-year at a baccalaureate level institutions.
- Survey includes items about prior high school experiences, as well expectations and attitudes regarding the upcoming first-year experiences.
- For this study data are from, more than 30,000 first-year students enrolled at 68 institutions across the United States.
- Overall completion rate across institutions in this study was approximately 80%.
- Of the responding students, 67% were white, 8% were African American, 9% were Latino/Hispanic, and 8% were Asian or Asian American, 41% male, 37% first-generation students


Method: Data Source

2010 administration of BCSSE with 6 experimental items added



 Help

 Contact Us

 Save and Exit

The earlier question:

During your **last year of high school**, about how often did you do each of the following?

	Very Often	Often	Some-times	Never
Worked with classmates outside of class to prepare class assignments				

You did not answer this question.

Please specify the number of times and the unit you typically did this activity.
Enter a number (e.g., 1,2,3) and indicate a unit of time (e.g, day, week, month):

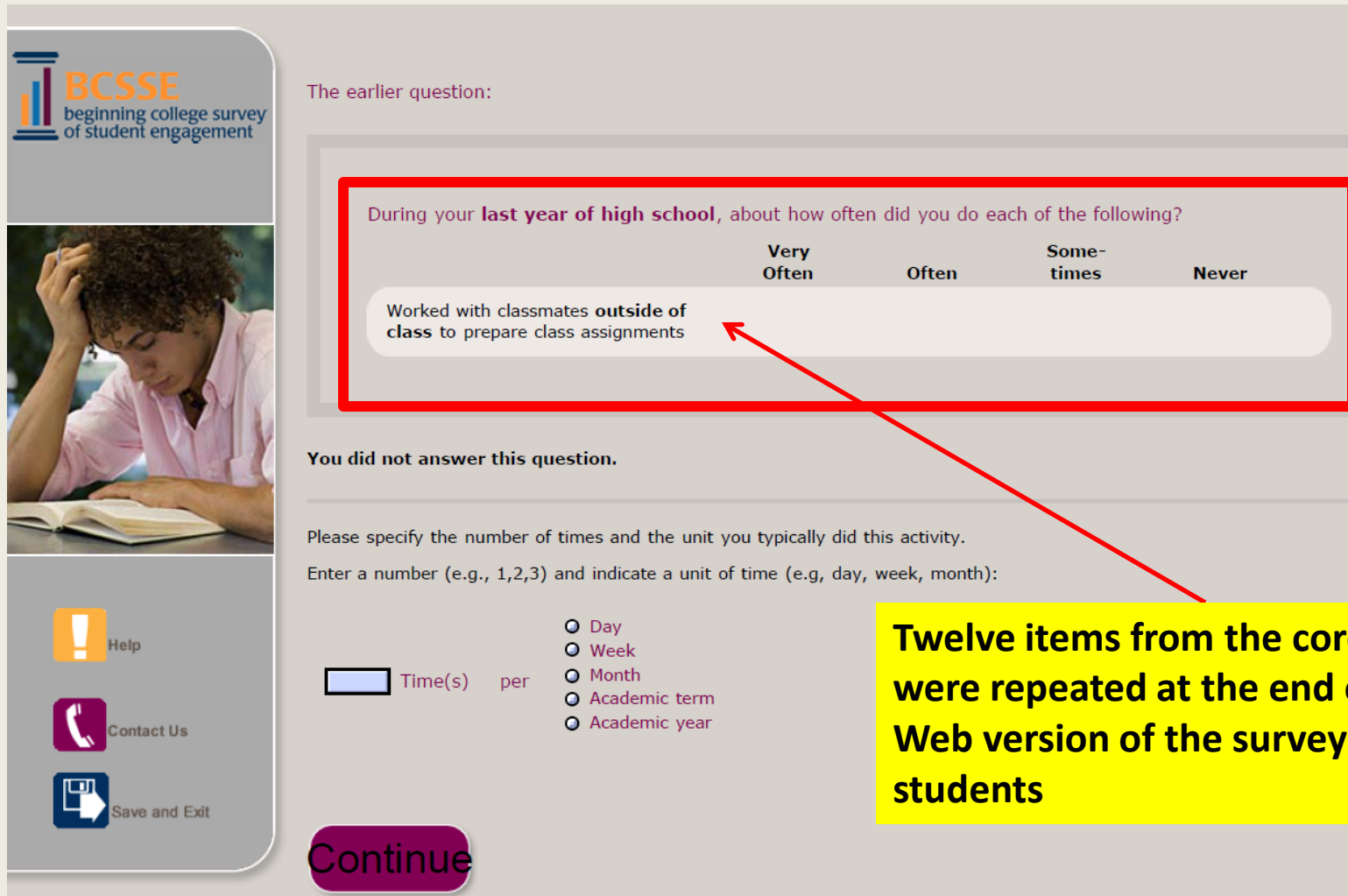
Time(s) per

☐ Day
☐ Week
☐ Month
☐ Academic term
☐ Academic year

Continue

Method: Data Source

2010 administration of BCSSE with 6 experimental items added



The screenshot displays the BCSSE (beginning college survey of student engagement) interface. On the left, there is a sidebar with the BCSSE logo and a photo of a student. Below the photo are three buttons: 'Help' (with an exclamation mark icon), 'Contact Us' (with a phone icon), and 'Save and Exit' (with a document icon). The main content area shows a question: 'During your **last year of high school**, about how often did you do each of the following?'. Below the question are four response options: 'Very Often', 'Often', 'Some-times', and 'Never'. A red box highlights the question and the response options. Below the response options is a text input field containing the text 'Worked with classmates **outside of class** to prepare class assignments'. A red arrow points from this text input field to a yellow box on the right. Below the question, there is a message: 'You did not answer this question.' followed by instructions: 'Please specify the number of times and the unit you typically did this activity. Enter a number (e.g., 1,2,3) and indicate a unit of time (e.g, day, week, month):'. Below these instructions are four radio button options: 'Day', 'Week', 'Month', 'Academic term', and 'Academic year'. At the bottom of the main content area is a 'Continue' button.

BCSSE
beginning college survey
of student engagement

The earlier question:

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Enter a number (e.g., 1,2,3) and indicate a unit of time (e.g, day, week, month):

Time(s) per



- ☐ Day
- ☐ Week
- ☐ Month
- ☐ Academic term
- ☐ Academic year




Continue

Twelve items from the core survey were repeated at the end of the Web version of the survey for students

Method: Data Source

2010 administration of BCSSE with 6 experimental items added



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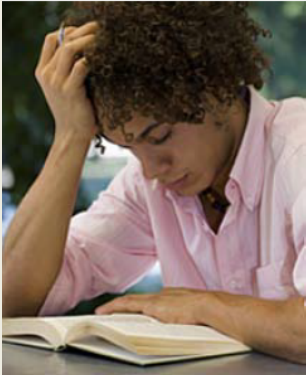

- ☐ Day
- ☐ Week
- ☐ Month
- ☐ Academic term
- ☐ Academic year


Continue


Students could report frequency based on five options (per day, week, month, academic term, and academic year).


Method: Data Source

2010 administration of BCSSE with 6 experimental items added



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	Very Often	Often	Some-times	Never
Worked with classmates outside of class to prepare class assignments				

You did not answer this question.

Please specify the number of times and the unit you typically did this activity.
Enter a number (e.g., 1,2,3) and indicate a unit of time (e.g., day, week, month):

Time(s) per

☐ Day

☐ Week

☐ Month

☐ Academic term

☐ Academic year

Week was taken as the baseline and responses with other time frames were adjusted by appropriate multipliers.

Continue

Method: Data Source

Two Stems for each item set:

1. During your last year of high school, about how often did you do each of the following?
2. During the coming school year, about how often do you expect to do each of the following?

Items:

- Asked questions in class
- Made a class presentation
- Discussed grades or assignments with a teacher
- Worked with classmates outside of class to prepare class assignments
- Discussed ideas from your readings or classes with teachers outside of class
- Discussed ideas from your readings or classes with others outside of class (students, family members, etc)

Results

RQ1: Consistency between estimations using vague and enumerated quantifiers?

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Items	Format	Mean SD	High School	College Expectation	M _{diff}	p<	d
Ask Questions	Vague	M	3.21	3.20	-0.01	n/s	-0.01
		SD	.80	.74			
	Tallied	M	16.73	11.63	-5.10	.001	-.41
		SD	14.24	10.02			
Class Presentations	Vague	M	2.75	2.83	.08	.001	.11
		SD	.76	.73			
	Tallied	M	.81	.88	.07	.001	.09
		SD	.77	.81			
Discuss grades w/ faculty	Vague	M	2.69	2.96	.27	.001	.34
		SD	.82	.78			
	Tallied	M	1.69	1.68	-.01	n/s	-.01
		SD	2.06	1.92			

Results

RQ1: Consistency between estimations using vague and enumerated quantifiers?

Items	Format	Mean SD	High School	College Expectation	M _{diff}	p<	d
Ask Questions	Vague	M	3.21	3.20	-.01	n/s	-.01
		SD	.80	.74			
	Tallied	M	16.73	11.63	-5.10	.001	-.41
		SD	14.24	10.02			
Class Presentations	Vague	M	2.75	2.83	.08	.001	.11
		SD	.76	.73			
	Tallied	M	.81	.88	.07	.001	.09
		SD	.77	.81			
Discuss grades w/ faculty	Vague	M	2.69	2.96	.27	.001	.34
		SD	.82	.78			
	Tallied	M	1.69	1.68	-.01	n/s	-.01
		SD	2.06	1.92			

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RQ1: Consistency between estimations using vague and enumerated quantifiers?

Items	Format	Mean SD	High School	College Expectation	M _{diff}	p<	d
Worked w/classmates outside class	Vague	M	2.38	3.02	.64	.001	.80
		SD	.82	.78			
	Tallied	M	1.05	1.82	.44	.001	.53
		SD	1.27	1.63			
Discuss ideas outside class w/faculty	Vague	M	2.14	2.66	.52	.001	.60
		SD	.90	.84			
	Tallied	M	1.40	1.54	.14	.001	.07
		SD	2.05	1.55			
Discuss ideas outside class w/others	Vague	M	2.59	2.88	.29	.001	.35
		SD	.87	.78			
	Tallied	M	3.08	3.49	.41	.001	.15
		SD	2.80	2.56			

Results

RQ1: Consistency between estimations using vague and enumerated quantifiers?

Items	Format	Mean SD	High School	College Expectation	M _{diff}	p<	d
Worked w/classmates outside class	Vague	M	2.38	3.02	.64	.001	.80
		SD	.82	.78			
	Tallied	M	1.05	1.82	.44	.001	.53
		SD	1.27	1.63			
Discuss ideas outside class w/faculty	Vague	M	2.14	2.66	.52	.001	.60
		SD	.90	.84			
	Tallied	M	1.40	1.54	.14	.001	.07
		SD	2.05	1.55			
Discuss ideas outside class w/others	Vague	M	2.59	2.88	.29	.001	.35
		SD	.87	.78			
	Tallied	M	3.08	3.49	.41	.001	.15
		SD	2.80	2.56			

Results

RQ2: Relationship between past and expected behaviors using vague and enumerated quantifiers.

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		High School		Expectation				
Items	Responses	M	SD	M	SD	M _{diff}	p<	d
Ask Questions	Very often	23.02	14.92	16.15	10.47	-6.87	.001	-.52
	Often	15.4	12.49	10.87	9.11	-4.53	.001	-.42
	Sometimes	7.38	8.54	5.24	6.46	-2.15	.05	-.28
	Never	2.26	5.22	1.42	3.91	-.84	n/s	-.17
Class Presentations	Very often	1.33	.92	1.72	.96	.39	.001	.41
	Often	.97	.77	.99	.80	.02	n/s	.02
	Sometimes	.49	.50	.54	.54	.05	.05	.10
	Never	.08	.29	.12	.40	.10	n/s	.28
Discuss Grades	Very often	3.20	2.62	2.65	2.37	-.54	.001	-.22
	Often	2.13	2.08	1.71	1.75	-.42	.001	-.22
	Sometimes	.89	1.25	.81	1.14	-.08	n/s	-.06
	Never	.17	.71	.40	1.22	.23	n/s	.28

Results

RQ2: Relationship between past and expected behaviors using vague and enumerated quantifiers.

		High School		Expectation				
Items	Responses	M	SD	M	SD	M _{diff}	p<	d
Ask Questions	Very often	23.02	14.92	16.15	10.47	-6.87	.001	-.52
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	Never	2.26	5.22	1.42	3.91	-.84	n/s	-.17
Class Presentations	Very often	1.33	.92	1.72	.96	.39	.001	.41
	Often	.97	.77	.99	.80	.02	n/s	.02
	Sometimes	.49	.50	.54	.54	.05	.05	.10
	Never	.08	.29	.12	.40	.10	n/s	.28
Discuss Grades	Very often	3.20	2.62	2.65	2.37	-.54	.001	-.22
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	Sometimes	.49	.50	.54	.54	.05	.05	.10
	Never	.08	.29	.12	.40	.10	n/s	.28
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RQ2: Relationship between past and expected behaviors using vague and enumerated quantifiers.

		High School		Expectation				
Items	Responses	M	SD	M	SD	M _{diff}	p<	d
Worked w/classmates outside class	Very often	2.26	1.58	2.68	1.76	.42	.001	.24
	Often	1.66	1.37	1.86	1.51	.21	.001	.14
	Sometimes	.71	.93	.91	1.10	.20	.001	.21
	Never	.11	.47	.26	.79	.15	n/s	.30
Discuss ideas outside class w/faculty	Very often	4.01	2.91	2.74	1.82	-1.27	.001	-.56
	Often	2.66	2.31	1.93	1.51	-.74	.001	-.40
	Sometimes	1.09	1.48	.96	1.10	-.13	.05	-.10
	Never	.16	.75	.22	.71	.05	n/s	.07
Discuss ideas outside class w/others	Very often	6.54	4.20	4.64	2.85	-1.90	.001	-.54
	Often	4.09	3.35	3.05	2.36	-1.04	.001	-.37
	Sometimes	1.64	2.13	1.49	1.71	-.15	n/s	-.08
	Never	.30	1.33	.26	.88	-.03	n/s	-.03

Results

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	Never	.30	1.33	.26	.88	-.03	n/s	-.03

Discussion

This study sheds light on two important topics:

- 1) do past and expected behavior estimations vary due to response type,
- 2) are past and expected behavioral estimations using vague quantifiers consistent with past and expected behavioral estimations using enumeration strategies.

Discussion

This study found:

- evidence that there is some consistency when using vague and enumerated strategies.
- some behavioral estimation were inconsistent.
 - One practical implication of this is for those that conduct “gap analysis” where data are used to identify areas where student expectations are not met. Researchers may want to consider how their results may differ if their response categories were changed. It maybe that the magnitude of the gap is more of an artifact of the response set, then any real gap in behavior.

Discussion

- Overall, this study found that sometimes vague responses mean different frequencies and sometimes not for the same behavior. low frequency responses (“never” or “sometimes”) within a behavior tend to be comparable
- Higher frequency response (e.g., “very often”) do not seem to be comparable with enumerated estimations for same behavior.
 - The more frequent the behavior compared to other behaviors, the more it favored past behaviors in high school.

It is to remember that neither estimation procedure is necessarily accurate. Both estimation procedures have sources of error, though generally unique from each other.

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Thank you

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